

Space Weather Forecast

Issued on Monday, 20 June 2022 at 01:04 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

Space Weather Forecast Headline: Daily chance of an isolated moderate-class X-ray flare.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low, with occasional small common class X-ray flares, the largest of which came from a region that is moderately large and active, now approaching the central meridian in the north. There are six other regions on the visible disc.

A large filament (arc of plasma) in the northwestern quadrant is showing signs of movement late in the period. A couple of Coronal Mass Ejections (CME) were observed leaving the sun but none of these are considered to be Earth-directed.

Solar Wind / Geomagnetic Activity: The solar wind was relatively steady during the first half of the period at around 580-600 km/s, presumably under the influence of a high speed stream originating from a coronal hole that was visible a few days ago. It then slowly declined during the second half, currently around 540 km/s. The total magnetic field was within normal background levels, with only weak variations in its important north-south component. The net result of the above solar wind measures was Quiet to Unsettled, albeit with an Active period recorded between 19/0000-0300 UTC.

Energetic Particles / Solar Radiation: The high energy proton flux remained at background, with no solar radiation storms observed in the period.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to be low, with a daily chance of an isolated moderate-class flare.

Solar Wind / Geomagnetic Activity: No CMEs feature in the forecast. Elevated solar winds are expected to slowly decline on Day 1 but may become elevated or perhaps strong on Day 2 under the influence of a small coronal hole, followed by another slow decline on Days 3 and 4. Geomagnetic activity should remain largely Quiet, but Quiet to Unsettled with a chance of an Active interval or even a very slight chance of a G1/Minor storm on Day 2 (21st).

Energetic Particles / Solar Radiation: Solar radiation storms are not likely in the period and should remain at background levels. However there is a daily slight chance of an S1 or greater event occurring, due to the presence of a couple of relatively large and complex regions.

Geomagnetic Storms:

Geo-Magnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	No	1	10	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 M Class	No	30	30	30	30
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = cm⁻²sr⁻¹s⁻¹)